



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,768	09/22/2000	Yasuo Kobayashi	08038.0043	8178

22852 7590 08/01/2002

FINNEGAN, HENDERSON, FARABOW, GARRETT &
DUNNER LLP
1300 I STREET, NW
WASHINGTON, DC 20005

EXAMINER

MOORE, KARLA A

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 08/01/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/667,768

Applicant(s)

KOBAYASHI ET AL.

Examin r

Karla Moore

Art Unit

1763

-- Th MAILING DATE of this communication appears on th cover sh et with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-7, drawn to a processing apparatus, classified in class 156, subclass 345+.
 - II. Claims 8-9, drawn to a method of removing an oxide film, classified in class 216, subclass 2+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, apparatus as claimed could be used for coating instead of etching.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. David Hill (with Examiner Alanko) on 6/28/02 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-7. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-9 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

35. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2 and 5 are rejected under 35 U.S.C. 102(b) as being U.S. Patent No. 5,076,205 by Vowles et al.

36. Vowles et al. disclose a processing apparatus (Figure 1; column 3, rows 43-50) for removing a film from an object to be processed, the processing apparatus comprising: a first processing chamber (22) having an active gas species generating unit; a second processing chamber (24) having a heater for heating the object to be processed; and a transporter/transport arm (34; column 2, rows 41-50) for transporting the object between the first processing chamber and the second processing chamber. Although, a heater is not explicitly disclosed, it would inherently be a part of a rapid thermal annealing chamber.

37. With respect to claim 5, Vowles et al. further teach that the transporter (transport arm) is arranged in a transfer chamber (16,18) which is filled up with a non-reactive atmosphere inside (column 2, rows 49-52).

Claim Rejections - 35 USC § 103

38. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1763

39. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,532,593 to Brors et al. in view of U.S. Patent No. 6,403,925 to Johnsgard et al.

40. Brors et al. disclose a processing apparatus in Figures 3, 11 and 12, comprising: a processing container (22) accommodating the object to be processed therein; an active gas species (abstract); a heater (400) arranged outside the processing container to heat the object to be processed; a transparent window (104) formed in the processing container between the heater and the object to be processed, the transparent window sheltering the interior of the processing container from the outside in an airtight manner and also allowing the heating energy from the heater to pass through; and a shielding plate (122) provided in such a way that the shielding plate can be inserted into or extracted from a gap between the object and the transparent window.

41. Brors fails to teach the use extractable shield for purposes insulation.

42. Johnsgard et al. teach the use of an insertable shield for covering a window when not in use for the purpose of providing insulation (column 9, rows 61-67).

43. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to provide a insertable shield as a window covering for improved insulation as taught by Johnsgard et al.

44. Claims 3/1 and 3/2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brors et al. and Johnsgard et al. or Vowles et al. respectively, as applied above.

45. Claims 3/1 and 3/2 are drawn to a chemical species for an intended use of the apparatus, the courts have ruled expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

46. Claim 4/1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brors et al. and Johnsgard et al. as applied to claim 1 above, and further in view of U.S. Patent No. 5,624,499 to Mizuno et al.

47. Brors et al. and Johnsgard et al. disclose the invention substantially as claimed.

Art Unit: 1763

48. However, the prior art fails to teach a shielding plate provided with a cooler for cooling the shielding plate itself.

49. Mizuno et al. teach cooling a shielding structure within a processing apparatus for the purpose of keeping the structure at a temperature where a film deposition rate is so low that deposition on the shield and the resulting contamination particles are prevented (column 15, rows 54-61).

50. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a cooler for cooling the shielding plate in the prior art in order to prevent unwanted contamination particles within the chamber as taught by Mizuno et al.

51. Claims 6/1 and 7/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brors et al. and Johnsgard et al. as applied to claim 1 above, and further in view of U.S. Patent No. 4,952,273 to Popov.

52. Brors et al. and Johnsgard et al. disclose the invention substantially as claimed.

53. However, Brors et al. and Johnsgard et al. fail to disclose the apparatus further comprising: a plasma generating tube, a plasma gas introducing part, a NF₃ gas supplying part, a microwave generating source, or a waveguide.

54. Popov teaches the use of a plasma generating tube (50) for the purposes of controlling the size, shape, and density of the plasma stream at the sample, and to deliver the plasma to the sample without interfering with adjacent equipment (column 4, rows 52-56); and a plasma gas introducing part (58) for the purpose injecting the input gases into the source chamber (column 4, rows 64-66).

55. Doi teaches the use of a processing apparatus further comprising a NF₃ gas supplying part (18) for the purpose of introducing a gas for in-situ cleaning processing (column 5, rows 29-32).

56. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have included a plasma generating tube in Brors et al. and Johnsgard et al. in order to control the size, shape and density of the plasma stream, deliver the plasma without interfering with adjacent equipment as taught by Popov and to additionally provide and a plasma introducing part in order to inject the input gases into the source chamber as taught by Popov.

Art Unit: 1763

57. Additionally it would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a NF3 gas supplying part in Brors et al. and Johnsgard et al. in order to introduce a gas for in-situ cleaning processing as taught by Doi.

58. With respect to claim 7/1, Popov teaches the use of a wave magnetron for the purpose of generating microwaves (column 3, rows 44-47) and a waveguide for delivering the microwaves into the chamber (abstract).

59. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a wave magnetron for generating microwaves and a waveguide for delivering the microwaves in Brors et al. and Johnsgard et al. as taught by Popov.

60. Claims 6/2 and 7/2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vowles et al. as applied to claim 2 above, and further in view of U.S. Patent No. 4,952,273 to Popov.

61. Vowles et al. disclose the invention substantially as claimed.

62. However, Vowles et al. fail to disclose the apparatus further comprising: a plasma generating tube, a plasma gas introducing part, a NF3 gas supplying part, a microwave generating source, or a waveguide.

63. Popov teaches the use of a plasma generating tube (50) for the purposes of controlling the size, shape, and density of the plasma stream at the sample, and to deliver the plasma to the sample without interfering with adjacent equipment (column 4, rows 52-56); and a plasma gas introducing part (58) for the purpose injecting the input gases into the source chamber (column 4, rows 64-66).

64. Doi teaches the use of a processing apparatus further comprising a NF3 gas supplying part (18) for the purpose of introducing a gas for in-situ cleaning processing (column 5, rows 29-32).

65. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have included a plasma generating tube in Vowles et al. in order to control the size, shape and density of the plasma stream, deliver the plasma without interfering with adjacent equipment as taught by Popov and to additionally provide and a plasma introducing part in order to inject the input gases into the source chamber as taught by Popov.

Art Unit: 1763

66. Additionally it would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a NF3 gas supplying part in Vowles et al. in order to introduce a gas for in-situ cleaning processing as taught by Doi.

67. With respect to claim 7/2, Popov teaches the use of a wave magnetron for the purpose of generating microwaves (column 3, rows 44-47) and a waveguide for delivering the microwaves into the chamber (abstract).

It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a wave magnetron for generating microwaves and a waveguide for delivering the microwaves in Vowles et al. as taught by Popov.

Conclusion

68. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km
July 29, 2002


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700